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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

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In the Matter of)

Advanced Television Systems)
and Their Impact upon the)
Existing Television Broadcast)
Service)

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

MM Docket No. 87-268

To: The Commission

DOCKET FILE COPY ORIGINAL

COMMENTS OF

SUNBELT COMMUNICATIONS COMPANY

ON THE SIXTH NOTICE OF PROPOSED RULEMAKING

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November 22, 1996

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**COMMENTS OF SUNBELT COMMUNICATIONS COMPANY
ON THE SIXTH NOTICE OF PROPOSED RULEMAKING**

Sunbelt Communications Company ("Sunbelt") is a signatory of the Broadcasters' Comments On the Sixth Notice of Proposed Rulemaking ("6th Notice") and subscribes to those Comments except to the extent the following comments may be inconsistent therewith. It is not Sunbelt's purpose to address the broad policy matters raised in the 6th Notice and addressed in the Broadcasters' Comments, but to inform the Commission of several practical ways in which the 6th Notice and the proposed Table of DTV Allotments will impact upon Sunbelt as the owner of six television stations in primarily small markets in Nevada, Idaho, Arizona and Wyoming.¹

The Coverage of The DTV Channel Allocated to Channel 4 in Reno is Inadequate.

In the Table of Proposed DTV Channel Allotments, Appendix B to the 6th Notice, Channel 48 is allocated to Sunbelt's KRNK, Channel 4 in Reno, Nevada. The Table itself shows that this allocation will result in a 40% reduction of the service area and a 16% reduction in the

¹ Sunbelt, until recently known as Sunbelt Broadcasting Company, is the parent of the licensees of KVBC, Ch. 3 in Las Vegas and KRNK, Ch. 4 in Reno, Nevada, KPVI, Ch. 6 in Pocatello and KXTV, Ch. 35 in Twin Falls, Idaho, KYMA, Ch. 11 in Yuma, Arizona and KJWY, Ch. 2 in Jackson, Wyoming, and the permittee of KENV, Ch.10 in Elko, and KWNK, Ch.7, in Winnemucca, Nevada.

population served by KRNH. This means that more than 50,000 people who are now part of the audience of KRNH will be lost to the station when it switches to digital operation. Reno is a small market to begin with, DMA number 120, and KRNH, the NBC affiliate, already reaches significantly fewer people (339,000) than its competitors the CBS affiliate, Channel 2 (452,000), and the ABC affiliate, Channel 8 (494,000). It would seem that in a sparsely populated part of the country such as Nevada it would be possible to allocate a DTV channel which would not have the effect of greatly reducing the audience of a station whose signal is already relatively weak.² From the proposed DTV Table of Allotments it does not appear there is any other station in the country which loses as much area and population as Channel 4 in Reno does.

DTV Markets Should Be All UHF or All VHF.

By defining the core spectrum for DTV as being between channels 7 and 51 (6th Notice at p. 10), the Commission would eliminate five of the 12 more desirable VHF channels presently utilized for NTSC television stations, leaving only seven such channels. From the proposed DTV Table of Allotments it appears there would be only one or at most two VHF stations allotted to most markets, whereas in the NTSC scheme there were usually at least three such stations per market. It does not appear that the Commission has focused on the competitive advantage for the one VHF station over the other stations that will result from this DTV allocation scheme.

We are not referring to any perceived public bias in favor of low numbered channels, which may

² Sunbelt recognizes that it is not in the interest of the Commission or the broadcasting industry for stations to get into a contest for particular DTV allocations, and, as is indicated below, in the interest of fair competition Sunbelt would be in favor of an allocation scheme in which all DTV channels in a market are either VHF or UHF. If there is to be a mixing of VHF and UHF channels as in the Commission's proposed list, however, it would seem there are better ways of determining which station will get the only VHF station than simply awarding it to the present station whose number is closest, which appears to be the Commission's approach.

well be eliminated by a creative channel labeling program as the Commission suggests (6th Notice at p. 33). Nor are we here referring to a coverage advantage for the VHF station, since one purpose of the allocation scheme is to replicate the service areas of existing stations.³ What we are referring to is the dollar cost of utilizing a UHF channel to replicate the service area of a VHF station, as opposed to the cost of utilizing another VHF channel to accomplish the same thing. A station's transmitter output power relates directly to its input power requirements and the monthly power bill. For example, in Las Vegas, Sunbelt's Channel 3 is paired with DTV Channel 49, while its competitor's Channel 8 is paired with DTV Channel 7. According to the DTV Table of Allotments, to replicate the service area of Ch. 3 on Ch. 49 will require power of 5,000 KW, which Sunbelt's Vice President for Engineering has determined will cost about \$28,000 per month. To replicate the service area of Channel 8 on Channel 7 will require 10.1 KW of power, which it is estimated will cost approximately \$2,500 per month (See Attachment 1). What this means is that the annual power bill for Ch. 49 is likely to be over \$330,000 while the annual power bill for Ch. 7 is likely to be approximately \$30,000. A difference of \$300,000 in the cost of power alone is a significant competitive advantage for one station over another when they are competing head to head in a market.

While many broadcasters were opposed to the Commission's earlier proposal to put all DTV stations in the UHF band, that proposal at least had the advantage of providing a level playing field for competitive purposes. From the viewpoint of competition, the Commission's present proposal of a core spectrum from Channel 7 to Channel 51 is neither fish nor fowl. Most

³ An Engineering study, utilizing the Longley-Rice propagation model, of the Grade B coverage differences between Sunbelt's VHF stations in Las Vegas and Reno and the UHF channels allocated for DTV shows that there are enormous differences, however. See Attach. 2.

but not all VHF stations are moved to the UHF band, but the few stations which remain in the VHF band will have a significant new competitive advantage. One solution to this problem would be to make each market either UHF or VHF in DTV allocations. Since there are far fewer VHF channels available there would be fewer VHF markets, but at least within each market there would be a level playing field as far as the costs of power would be concerned.

Translators Are Essential In Mountainous Areas.

Sunbelt supports the comments of the National Translator Association in response to the 6th Notice, including the proposal of delaying the spectrum recovery plan until the new DTV service has been implemented and proven. Although we recognize that the need to set aside channels for full power DTV stations reduces the number of channels available for use as translators, we also recognize that DTV itself will create an increased demand for translators. In the mountainous areas of the West where Sunbelt's stations are located translators will be needed both to continue providing programming from Sunbelt's existing NTSC stations and to provide programming from the new DTV stations.

Translators are an integral part of Sunbelt's stations' operations. In many small isolated communities translators are the only source of a television station's signal. In the larger communities where the stations are located translators are also used because of the serious problem of shadowing caused by hills and mountains. Sunbelt and its stations hold twenty-six translator licenses, but that is only a small part of the total number of translators which carry the signals of its stations. For example, Channel 3 in Las Vegas is rebroadcast by 23 translators, only four of which are owned by the station (See Attachment 1). If any of these translators are displaced by DTV stations or spectrum recovery the translators will have to move to other

channels or part of the public will lose part of its over the air television service.

It is also essential that digital translators be available to carry the signals of the new DTV stations during the transition from NTSC to DTV, and thereafter. Sunbelt's engineers anticipate that there will be an even greater need for translators in DTV because most of these stations will be on UHF channels which are strictly line of sight, whereas the signals of the existing NTSC stations, most of which are VHF stations, are able to bend around hills and mountains to some extent. In this regard, Attachment 2 is an Engineering Statement utilizing the Longley-Rice propagation model with maps showing the shadowing problem which Sunbelt's stations in Las Vegas and Reno face. The only way for these stations to deliver a Grade B signal to the areas which suffer terrain blockage will be by DTV translators. As attachment 2 shows, that will be an enormous task in Reno and a major undertaking in Las Vegas. In the light of Attachment 2, until more is known about the way in which DTV stations will operate and DTV signals will be received in mountainous areas such as these, it would not seem desirable for the Commission to engage in spectrum recovery.

Flexibility In Transmitter Site Relocation Is Warranted.

In Sec. IV.A. of the 6th Notice (Para. 55, p. 23) the Commission requests comment on its proposal to allot DTV channels based on the transmitter sites of existing stations, and to permit a broadcaster to locate its DTV facility at any site within a three-mile radius of the actual transmitter location, so long as the station would continue to serve its community of license. Sunbelt is generally in favor of this proposal but suggests that the Commission be flexible in permitting waivers or variations where the circumstances warrant a different approach.

For example, as the proposed DTV Table of Allotments shows, Channel 4 in Reno has

poor coverage, serving a far smaller area and population than other stations in the market.⁴ The reason for this is that the station cannot move to a desirable location at the Reno antenna farm because from there it would be short spaced to a cochannel station. There are any number of DTV channels which could be paired with Channel 4, however, which would not have this disability and would permit the station to cover the market well from the antenna farm. Under these circumstances it would seem reasonable, and it would be in the public interest, to permit the station to locate its DTV station at the more desirable antenna farm location and thus correct the problem with its coverage of the market, rather than to needlessly perpetuate an unsatisfactory coverage situation resulting solely from the short spacing problem on the present channel.

There are other possible solutions to this problem which should also meet with the approval of the Commission. Recently the Commission granted Ch. 4 in Reno permission to increase its power to 100 KW. Sunbelt's engineers report that the present site is not appropriate for a full power operation so a new site will be required. A mountain top site - but not at the antenna farm - would be the most practical as it would allow a greater coverage area for Ch. 4 and permit colocation with the proposed DTV channel. Either of these variations of the Commission's DTV licensing proposal would seem to be in the public interest and should be permitted, as should other waivers where a problem on a channel can be resolved while maintaining service to a city of license and providing normal service on a DTV channel.

The Yuma Channel 19 DTV Assignment Is In Conflict With Ch. 20 in Mexicali.

In the Commission's proposed DTV Table of Allotments Sunbelt's Ch. 11 in Yuma is assigned DTV Channel 19. As the Broadcasters Comments point out in footnote 37 at p. 18, this

⁴ See page 1 above.


assignment is too close to adjacent channel 20 located at Mexicali, Mexico, directly across the border from Yuma. Broadcasters' proposed substitution of Channel 16 for Channel 19 in Yuma appears satisfactory to Sunbelt.⁵

Conclusion

Comments by their very nature tend to consist primarily of the discussion of areas where the commenter disagrees with the position advanced by the Commission, and thus tend to be negative in tone, but Sunbelt does not want to leave the impression that it is opposed to what the Commission has done in its 6th Notice. On the contrary, Sunbelt is pleased with the effort the Commission has gone to in the 6th Notice and in its prior efforts to bring digital television into being, and with the progress that has been made on this project, which is of such great importance to the future of free over the air television.

Respectfully submitted,

SUNBELT COMMUNICATIONS COMPANY


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Potomac, MD 20854
Phone: 301-983-0776
Fax: 301-983-0587

Its attorney

November 22, 1996

⁵ Broadcasters proposed substitution of Ch. 27 for Ch. 49 as the DTV channel to be paired with Ch. 3 in Las Vegas is also acceptable to Sunbelt.

ATTACHMENT 1

AFFIDAVIT OF FRANK HAYNES

STATE OF NEVADA)
)SS.
COUNTY OF CLARK)

FRANK HAYNES, being first duly sworn, deposes and says:

1. I am the Vice President of Engineering of Sunbelt Communications Company and I make this affidavit in support of Sunbelt's Comments On the Sixth Notice of Proposed Rule Making in FCC MM Docket No. 87-268.

2. Following the release of the Commission's Sixth Further Notice of Rule Making and the proposed DTV Table of Allotments, I noted that Sunbelt's Channel 3 in Las Vegas was paired with DTV Channel 49 at a power of 5000 KW. In the course of my ongoing examination of various aspects of digital television, I had a conversation with the former chief engineer of a San Diego UHF television station who informed me that the power for 5 Megawatts would cost approximately \$28,000 per month. I then inquired of Sunbelt's financial department as to what the average cost of power for Channel 3 in Las Vegas is and was told that it is approximately \$2,500 per month.

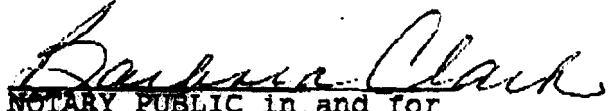
3. Including all of its stations, Sunbelt holds 26 translator licenses. KVBC, Channel 3 in Las Vegas, is rebroadcast by 23 translators, only 4 of which are licensed to Valley Broadcasting

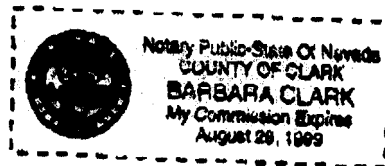
. . . .

the licensee of the station and a wholly owned subsidiary of Sunbelt.


FRANK HAYNES

SUBSCRIBED AND SWORN TO
before me this 22 day of
November, 1996.


NOTARY PUBLIC in and for
said county and state



ATTACHMENT 2

ENGINEERING STATEMENT

The information and data contained within this engineering statement were prepared on behalf of Sunbelt Communications Company in support of comments to the *Sixth Further Notice of Proposed Rule Making* MM Docket No. 87-268. Sunbelt is licensee of stations KVBC(TV), Channel 3, Las Vegas, Nevada, and KRNVT(TV), Channel 4, Reno, Nevada.

The purpose of this study is to demonstrate the disparity in coverage that will result from the Commission's suggested digital television assignments of Channels 48 and 49 to KRNVT(TV) and KVBC(TV), respectively.

KVBC(TV) operates with a peak visual power of 100 kW and a height above average terrain of 387 meters. The proposed Channel 49 DTV facility will operate with a peak visual power of 5,000 kW at the same HAAT. KRNVT(TV) is authorized to operate with a peak visual power of 100 kW and a HAAT of 133 meters. The proposed Channel 48 DTV facility will operate with a HAAT of 128 meters and a peak visual power of 634.8 kW.

To compare the service areas of the NTSC and DTV facilities studies were performed using predictions of field strength over irregular terrain employing the Longley-Rice propagation model (NBS Technical Note 101). For each transmitter site terrain elevations along 1440 radials spaced at 0.25-degree azimuthal intervals were extracted from topographic data obtained from the computerized three arc-second Defense Mapping Agency point elevation database. Point elevations were sampled every 50 meters along each radial by bilinearly interpolating between the four known surrounding point elevations.

To determine the signal strength at each point along the radial, the maximum peak visual power normalized to a single dipole element was used assuming an isotropic radiator. A receiving antenna height of 9 meters above ground at each point was used.

When a point was shielded from direct line-of-sight from the transmitting antenna, the vertical angle was taken to be the angle to the top of the highest apparent obstruction between the transmitting antenna and the point of interest assuming an effective earth radius $4/3$ that of the actual radius to account for atmospheric refraction.

The field strength at each point was then computed using a computerized implementation of the tropospheric radio propagation model developed at the Institute for Telecommunications Sciences and Aeronomy, Environmental Science Services Administration, National Bureau of Standards, by P. L. Rice, Anita G. Longley, Kenneth A. Norton and A. P. Barsis, and published for the first time in 1965. This series of methods, collectively known as the Longley-Rice propagation model, and commonly referred to as "Tech Note 101," is well known and has been generally accepted as an accurate method to predict path losses over irregular terrain.

The model depends on propagation path geometry and atmospheric refractivity near the surface of the earth. Calculations of expected transmission loss for paths within the radio horizon are based on geometric-optics ray theory. For paths with a common horizon, Fresnel-Kirchoff knife-edge diffraction theory is applied. For double horizon paths that extend only slightly over the horizon, a modification of the Van der Pol-Bremmer method for computing field intensity in the far diffraction region is used. For longer paths, extending well beyond the radio horizon, predictions are based on forward scatter theory. When some doubt exists about which propagation mechanism predominates, transmission loss is calculated by two methods and the results are combined.

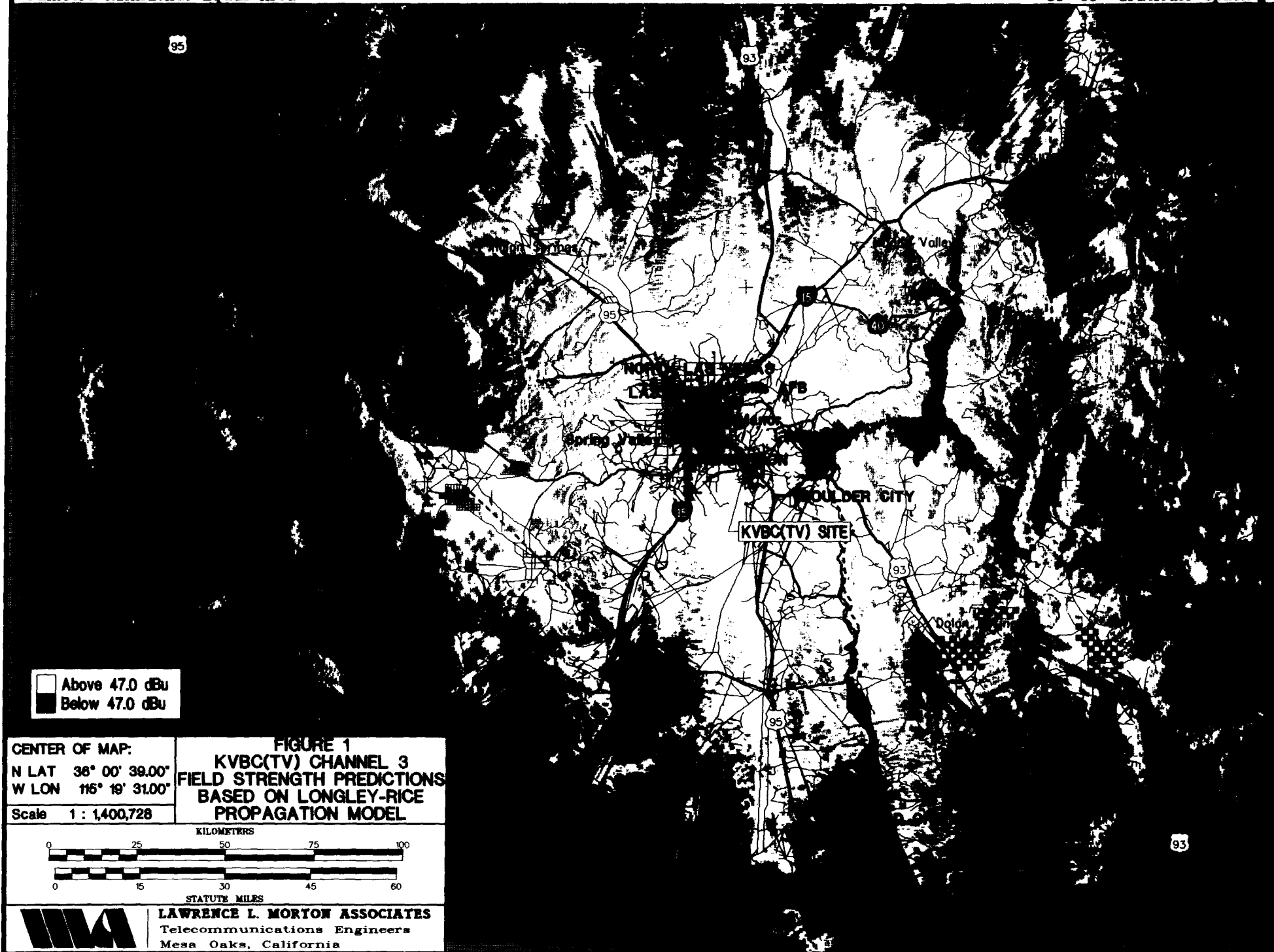
For reference, the surface refractivity was taken to be 301 N-units, a dielectric constant of 15 and a path soil conductivity of 5 mS/m were used in this study.

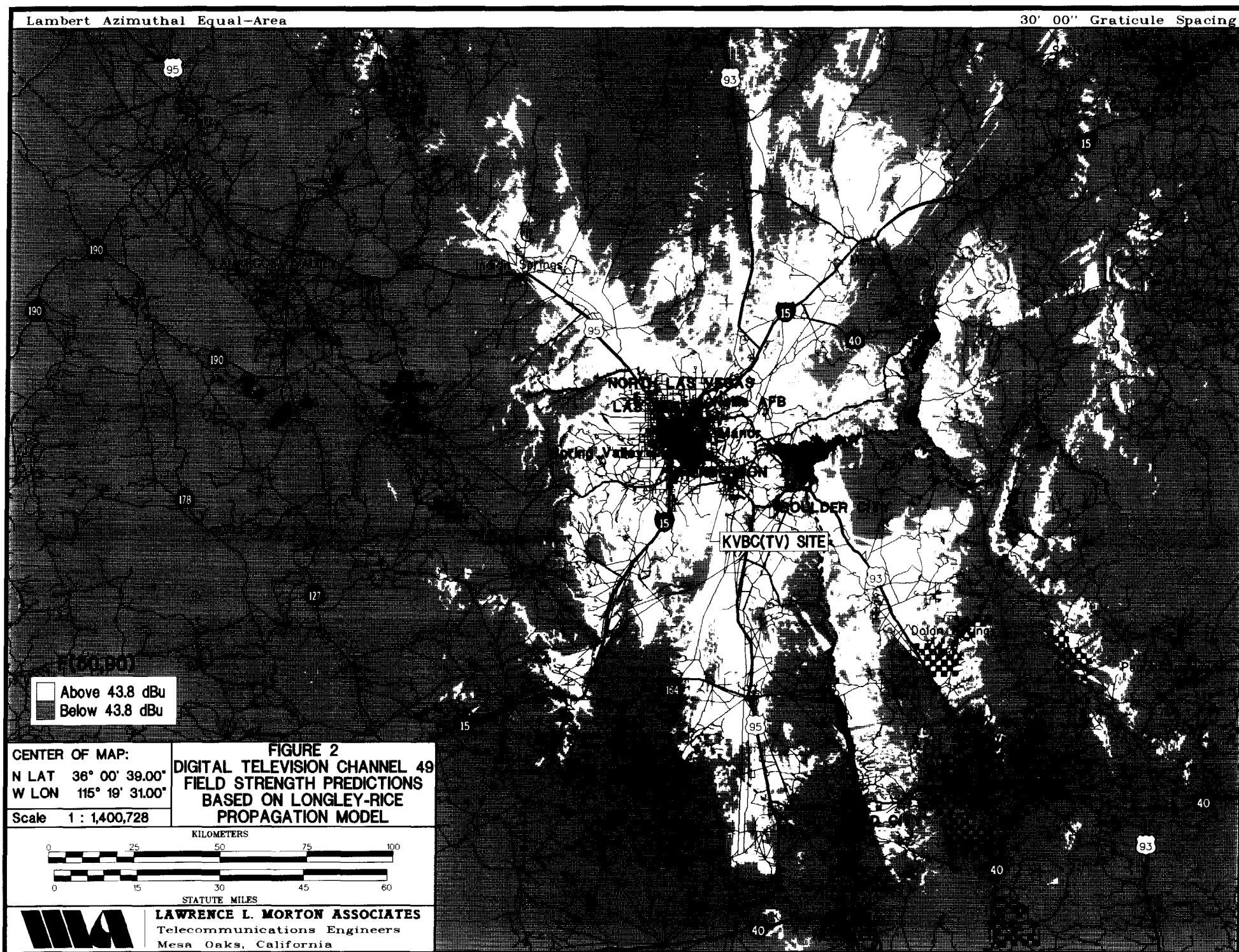
Figure one shows the results of the predictions for KVBC(TV) on Channel 3 at Las Vegas. The values represented are for 50% of the locations and 50% of the time. The shading threshold was established at the Grade B signal strength level of 47 dB μ . Figure two shows the same area overlaid with the results of the DTV Channel 48 study. In this case, the field strength values are for 50% of the locations and 90% of the time. The field strength threshold is 43.8 dB μ .

Figure three depicts the results of the KRNVT(TV) Channel 4 study at Reno. Again, the values represented are for 50% of the locations and 50% of the time with a shading threshold of 47 dB μ . Figure four represents the field strength predictions from the DTV Channel 49 facility with a F(50,90) field strength threshold of 43.8 dB μ .

It is believed that these representations are more accurate than simple contour methods using the FCC F(50,50) propagation curves of § 73.333. These curves, which are applied only to the average elevation of the terrain profile between two and ten miles removed from the transmitter site, assume that field strength decreases monotonically with increasing distance.

Lawrence L. Morton, P.E.
Consulting Telecommunications Engineer
November 21, 1996

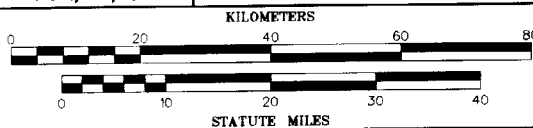




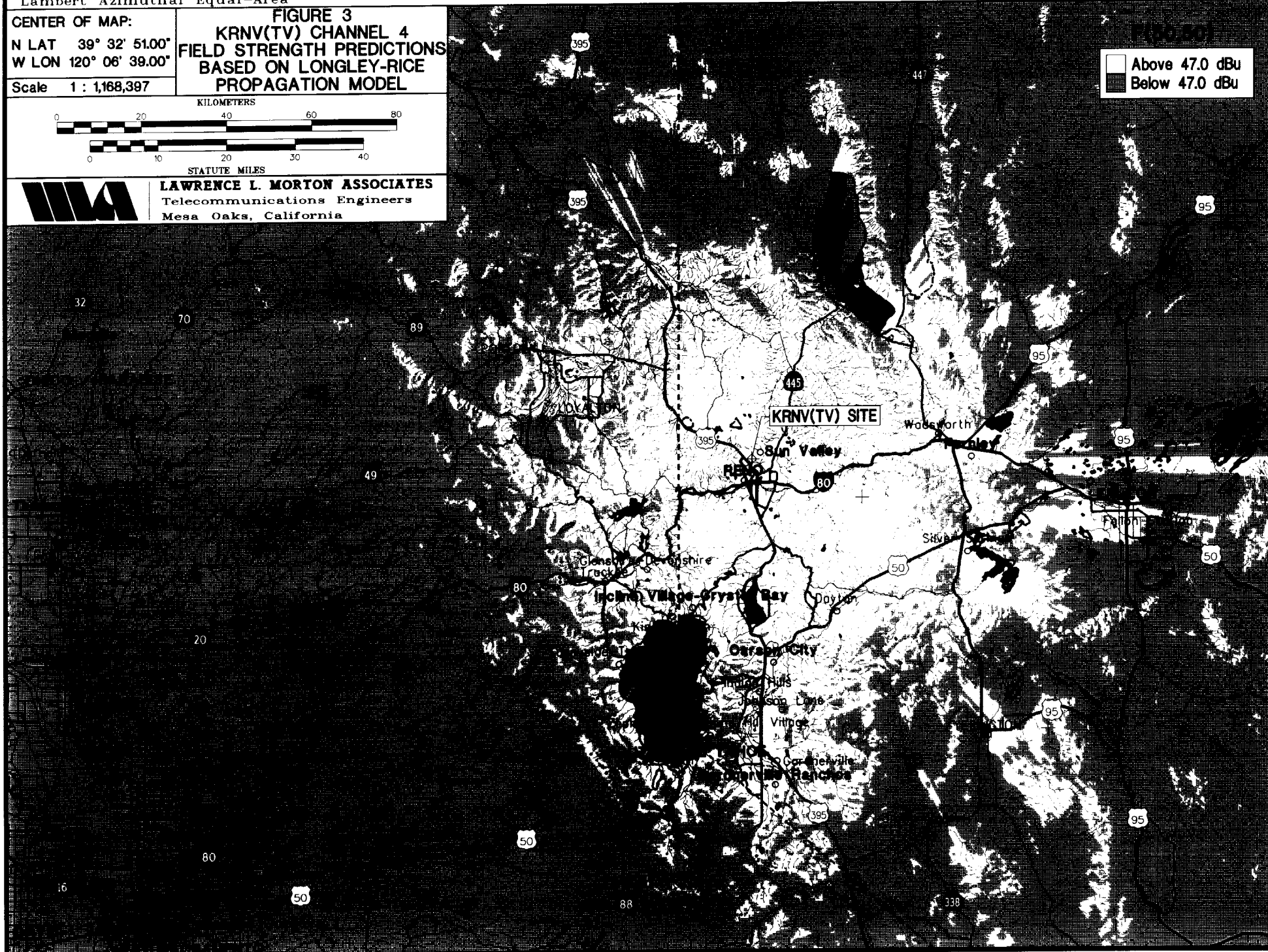
30' 00" Graticule Spacing

FIGURE 3
KRNV(TV) CHANNEL 4
FIELD STRENGTH PREDICTIONS
BASED ON LONGLEY-RICE
PROPAGATION MODEL

Scale 1 : 1,168,397



LAWRENCE L. MORTON ASSOCIATES
Telecommunications Engineers
Mesa Oaks, California



Lambert Azimuthal Equal-Area

30' 00" Graticule Spacing

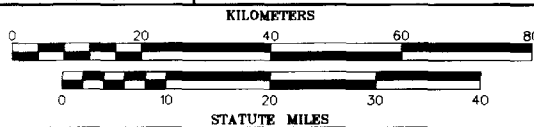
CENTER OF MAP:

N LAT 39° 32' 51.00"

W LON 120° 06' 39.00"

Scale 1 : 1,168,397

FIGURE 4
DIGITAL TELEVISION CHANNEL 48
FIELD STRENGTH PREDICTIONS
BASED ON LONGLEY-RICE
PROPAGATION MODEL



LAWRENCE L. MORTON ASSOCIATES
Telecommunications Engineers
Mesa Oaks, California

□ Above 43.8 dBu
■ Below 43.8 dBu




AFFIDAVIT

State of California)
) ss:
County of Orange)

Lawrence L. Morton, being first duly sworn upon oath, deposes and says:

- That he is a qualified engineer,
- That he is a Registered Professional Engineer in the State of California,
- That he is a member of the Association of Federal Communications Consulting Engineers,
- That his qualifications are a matter of record with the Federal Communications Commission,
- That he has prepared many broadcast applications and engineering exhibits that have been filed with and granted by the Federal Communications Commission,
- That he has carried out such engineering work and that the results thereof are attached hereto and form part of this affidavit, and
- That the foregoing statement and the report regarding the aforementioned engineering work are true and correct of his own knowledge.


Date: November 21, 1996



Lawrence L. Morton, P.E.

On November 21, 1996, before me, Nancy A. Chase, a Notary Public, in and for the State of California, personally appeared Lawrence L. Morton known to me to be the person whose name is subscribed to the within instrument, and acknowledged to me that he executed the same.

My Commission expires 11/30/96



Nancy A. Chase
Notary Public

